

## UGC warns on maintenance

by Ngila Crequer

The maintenance standards of university buildings are falling, and major replacements of property built in the 1960s boom is already overdue, the University Grants Committee has warned.

Even though the programme for new buildings is almost non-existent, the universities would still need £300m over the next five years for long-term maintenance and minor works.

A report prepared by the Building Advice Unit of the UGC states that in constant prices an extra £35m is necessary compared with what was spent in the past five years.

But the report notes that there has already been a shortfall in both long-term and day-to-day maintenance work, and that "...the proportion of the estate over twenty years old decreased sharply from 1950 to 1970 but from then it has not continued to increase equally sharply with inescapable consequences for the future expenditure needed. The signs are that these consequences have been ignored in the past five years."

The report only spells out what the universities would need. It says nothing about what resources

might be made available and in the present climate it is unlikely that the two would correspond.

The report is based on a series of questionnaires which went to universities, which were followed up by discussions with staff and on-site evaluation by UGC officials.

The building replacement value of the university estate is put at some £6,000m.

The report says: "Standards of day-to-day maintenance are on the whole adequate but they are falling. There is evidence of the need for major replacements growing significantly during the next decade and some work of this nature is already overdue. This is the first wave of long-term maintenance resulting from the building activity of the sixties."

There is need for a 30 per cent increase over the past five years in minor works, including the backlog of work to comply with new legislation, and alterations in buildings due to the loss of building programmes.

Figures show that during the Rubbush boom in the sixties, building in the universities peaked at £200m per annum. Now we are back to the 1950 level, with virtually no building.

When the figures are broken down they show that there should be an increase of 60 per cent in spending on residential areas in the next five years. Some arrears of work, such as the wholesale refurbishing of felt roofs at some universities, should already have been tackled, says the report.

Universities also varied in the way they approached planning their maintenance needs. "Some universities were able to produce evidence of being aware of the problems that lie ahead. For others, the need to react to the questionnaire had stimulated the first systematic consideration of the future."

"The impression was gained that some universities gave insufficient weight to repairs and maintenance and that the maintenance budget was simply that which remained after all other interests were catered for."

"The subject tends to be regarded as something that can be put off until another time; this may be true up to a point but the consequences of doing so cannot be ignored—breakdown or danger, damage, or deterioration that could have been avoided, ultimate total expenditure greater than it need be."

## Fixed hours proposal will clash with AUT policy

Dr Raoul Franklin, vice-chancellor of the City University in London, has put forward a controversial proposal that academics should work a specified number of hours a year and that attendance requirements should also be laid down.

The proposals, which he put forward for discussion in a letter to the local Association of University Teachers, have aroused great opposition and national officers of the union have been brought in for consultation.

A meeting between staff and Dr Franklin has been held and talks are still continuing. The policy of the AUT is to resist fixed hours of attendance on the basis that staff are required simply to spend the time necessary for the proper completion of their duties.

Dr Franklin wants agreement on norms for teaching loads, and has suggested 60-120 hours a year for professors, 120-200 for readers, 200-300 for senior lecturers, and 300-400 for junior lecturers.

He has proposed a total of 40 days annual leave for holidays, including public holidays and customary days. He also wants to discuss "the matter of our forming an intellectual community and, therefore, con-

cerns attendance at the university and availability." Here the proposal is 160 days a year.

Dr Franklin says that a definition of responsibilities would be mutually beneficial and bring students into line with staff. It would also mean that both within and outside the university.

Many staff are unhappy with the proposals and say that academic work cannot fit into rigid timetables. Those that carry out research at home or elsewhere will find that attendance requirements will penalize them.

There is also opposition to the view that lecturers and senior staff should be treated differently, especially as the AUT wants to merge the two grades.

Conditions of service were a subject before full university was accorded, when the Institute was first the Northampton College of Technology. Representatives of the local and national AUT went to comment, saying it was a matter of our forming an intellectual community and, therefore, con-

## CNAA plans fewer visits

by John O'Leary

Some validating procedures are being short-circuited by the Council for National Academic Awards in an attempt to cut costs.

Among the measures being taken are:

● Reduction in the size of visiting parties

● Postponing a small proportion of course renewals until after the 1980-81 session

● Approving others at meetings in London, while visits to the institutions concerned are postponed.

Dr Edwin Kerr, chief officer of the CNAA, warned directors and principals at the start of the academic year that the institutions themselves, the council was facing a year of increased economic constraints.

The prospect of steady, or even declining, student registrations created uncertainty about its income. He said: "While inflation would cause considerable increases in the council's outgoings. As a result, the budget of the CNAA was cut 'considerably'."

The extra measures mainly affect the subject boards under heaviest pressure of work. As a result, some courses referred back to institutions for amendment may not be reconsidered before the end of the academic year.

Dr Kerr has assured polytechnics and colleges that the CNAA is determined not to allow the new measures to compromise standards.

## Scots' fight gains strength

by Olga Wojtas

Scottish Correspondent.

The fight to save Scotland's higher education colleges has gained new strength following overwhelming opposition to the closures.

The Scottish Education Ministry has been urged to reconsider its proposals.

The governors of Hamilton College of Education, one of the threatened, have rejected outside the Government proposals, stating that the educational and social arguments for the college retention have not been answered.

The governors say they have been encouraged in their stance by the debate when only one MP reported the government front as an overwhelming argument against the closures were put forward by MPs of all parties.

"The governors believe that a democratically elected government could now proceed with the proposals for closure in their form, and look forward to the Scottish National Party's entry into the closure proposals."

The Scottish Education Minister, Mr Alex Fletcher, has revealed that the closures and merger would cost £500,000. This is the time the government has been urged to reconsider its proposals.

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## Use your ingenuity - Carlisle

by John O'Leary

Student numbers in higher education need not fall despite the latest round of Government cuts, Mark Carlisle, Secretary of State for Education, insisted this week.

Mr Carlisle told the North of England Education Conference at Carlisle: "I do not accept that a relatively small decline in resources must be precisely matched by a fall in provision. Human ingenuity is such that one is never tied to a fixed mix of buildings, staff, equipment and other materials to produce a given output of qualified students."

The University Grants Committee has given a lead in proposing course rationalisation and the public sector should be given equally strong advice, he said. Local authorities should assess the strength and weaknesses of their institutions and act accordingly.

"If this is done on a basis of collaboration between institutions and leads to cooperation between institutions and across the binary line, I believe there would be great benefits; and I rate these benefits not only in terms of pounds and pence but in the degree of academic strength of the country that will be offered to students," said Mr Carlisle.

He said later that there was scope for reducing unit costs further in order to maintain the present standards. Both universities and polytechnics have achieved this in the current year and he believed that the £44m cut in higher education budgets would have little effect on numbers.

Mr Carlisle also revealed that talks were under way at the Department of Education and Science on a new management structure for public sector higher education. Proposals could emerge within two months as the second part of the Government's response to the Select Committee report on higher education.

The committee's proposal for a national body for colleges and polytechnics will be given longer consideration than the rest of the report, which should receive an official reaction before the end of the month.

After his speech, Mr Carlisle was accused of "cant and humbug" by Mr Michael Harrison, chairman of the Association of Metropolitan Authorities, education committee, for appearing at the conference while presiding over the destruction of the education service in London.

Mr Carlisle conceded that London would lose jobs and money, but said that the new system of allocation for the city would restore the balance from London and penalise the shire counties.

## Engineering must poach funds if necessary, says committee

by Robin McKie

Science Correspondent.

Resources must be shifted towards engineering from other academic areas, the steering committee on engineering education and training is to tell the Department of Education and Science.

This recommendation is contained in a confidential report prepared by the committee following last October's national conference on engineering education. The report, which has to be given final approval by the committee when it meets on January 17, states that it is not realistic to expect either Government or industry at present to provide the extra funds needed to boost British engineering education and training.

The critical years will be from now until the middle of the decade, warns the committee, which was set up to study the educational implications of the Finlinton report on the engineering profession.

Funding agencies for universities and polytechnics should find ways of increasing money for engineering schools "even if this means that other departments must temporarily reduce their expenditure or forego for a period some new development of their own."

The steering committee has also proposed that engineering schools should be given priority in the allocation of funds for engineering education and training.

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## Engineering must poach funds if necessary, says committee

The committee, chaired by industrialist Mr Richard Morris, considers that this "diversion" phase would be hopelessly short-lived, although significantly it adds that "even when improved economic circumstances allowed rather greater expenditure on higher education, we would wish to see a continued emphasis on funding for engineering courses."

Other major changes put forward include a substantial allocation to the Finlinton proposals for revising engineering degrees. Sir Monty and his committee of inquiry, which reported last year, called for two new degrees—a BEng and an MEng. These would have a common first year, although only the top 25 per cent of students would take the MEng.

However, the steering committee now proposes only one first degree course—a four-year BEng which would involve greater engineering practice and management. This would be followed by a one-year postgraduate MEng for BEng graduates with personal potential "for leading the development of advanced technology or senior management."

"In recommending longer first degree honours courses, in engineering, we neither mean nor imply that all first degree courses in

engineering should be of the standard and length we propose."

On the thorny question of an engineering authority as a watchdog body for the profession, the report urges that it be set up without delay and that its charter be reinforced by a powerful and independent membership "seen to have the sympathy and support of the Government, clear terms of reference, and sufficient resources" to lead and encourage change.

This authority would set, in a similar fashion to the body suggested by Finlinton, an accredited and registering body for engineers.

Other proposals outlined in the report include calls for:

● Better education departments to institute an inquiry into the teaching of science and technology in schools;

● Criticism of the DES report, *A Framework for the Curriculum* for failing to include a technological subject in the core curriculum proposals;

● A new major role for the country's Science and Technology Regional Organizations to promote contacts between companies and schools;

● The introduction of simple technology teaching at primary schools.

Local government leaders have given notice of their intention to demand a powerful voice on any new body, the Government may establish to take over the planning of higher education in the maintained sector.

In a memorandum submitted for final approval next week, the Council of Local Education Authorities endorses the call made by the Parliamentary select committee last October for the creation of a Committee for Colleges and Polytechnics.

The Department of Education and Science is expected to reply to the select committee report later this month.

But CLEA says in its memorandum that its own newly established higher education group should play a key role in the establishment of the new body. It rejects the MPs' recommendation for an independent authority and offers to provide one jointly with the DES.

The CLEA memorandum also criticizes the "excessively narrow" view the MPs took of the Regional Advisory Councils. It rejects the call for their abolition and says that they provide local authorities with a way of assessing regional needs and making contact with industry, trade and commerce.

Local authority leaders support the view of MPs that a higher proportion of school leavers ought to be attracted to higher education, but warn that a big increase in student numbers would depend on the provision of more money on "a complete and far reaching review" of existing patterns of work.

One of the first tasks of a new body, CLEA says, will be to make rationalizations and economies in the public sector on similar lines to those being carried out for the universities by the University Grants Committee.

The CLEA memorandum reports a controversial suggestion made by councillors when the select committee was hearing evidence. This was a call for staff exchanges between higher education and schools, so that teachers of mathematics and other subjects could learn to cope with shortages in secondary schools.

The polytechnic would gain much-needed extra students—presumably paying full fees—and more intensive use of its laboratories and equipment.

The high costs of introducing laboratory-based courses has affected

the recruitment of students to engineering courses, he added.

PCL's record, Dr Colin Adamson

said: "We have been talking, but there is no proposal."

The discussions with Buckingham were part of a wider appraisal of technology education in which PCL was involved. The independent college was one of seven institutions—three abroad and four at home—spanning the binary line—with which the polytechnic was exploring this major educational proposal.

"PCL is not going to make a deal with anybody," Buckingham included—unless PCL's specialized talents can be used. The polytechnic is interested in doing something radical in engineering education and this is not going to do it," said Buckingham per se, he added.

## Gulf War hits fees from Iran and Iraq students

Polytechnics and education authorities were asked this week to hold back from harsh action against Iraqi and Iranian students who have not paid their fees.

A Council for Local Education Authorities circular lists the efforts being made by the United Kingdom Council for Overseas Students to ease the restrictions on the flow of funds from the two countries. It adds the hope that I.E.A.s and institutions will not defer students from beginning or resuming courses before the arrangements worked out in consultation with the Department of Education and the embassies, have had a chance to work.

The war has created the most acute non-payment problem, but student leaders say other factors, including the Turkish coup and the relative strength of the pound, have had their effect.

Already one polytechnic has threatened a tough line in an effort to jolt students into paying. Sunderland has warned that students who had not paid by Wednesday

would be excluded from the polytechnic. It was being stressed that the warning applied to both home and overseas students and was therefore not discriminatory. Once students paid, they would be allowed back when classes began at the beginning of next term.

The polytechnic declined to say how many students were involved, or to indicate the amount of fees outstanding.

But at nearby Newcastle last month 205 out of 234 overseas students had not paid either all the fees or the required number of instalments. But governors decided against suspension or exclusion and deferred dates for final payments.

National Union of Students officials hope that an improvement will soon be detected as far as Iranian and Iraqi students are concerned. This is reflected in the UKCOS view circulated by CLEA that difficulties facing most students are likely to be caused by delays rather than total disruption of transfers of funds.



Students on Europe's only MA course in contour fashion modelled their latest creations before an audience of teachers and students at the Polytechnic. The young fashionistas on the use of stretch fabrics.

## Lecturers seek help in dispute

The college lecturers' union is likely to seek independent help in its efforts to settle the dispute over research staff salaries and conditions.

It has been negotiating to implement the CLEA recommendation that research salaries and conditions should be negotiated alongside those of academics.

The education authority representatives have been unwilling to agree on the level at which research salaries should be tied to the lecturers' scale in the colleges.

At the moment there is a wide disparity of wages of research researchers. Academics of qualifications like Master's and Higher Education are likely to earn the highest salaries in the sector, while research staff are at the bottom of the scale.

Appointments seem unlikely to become more significant in the future.

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## Huddersfield's woes continue with threat to 100 staff

The repercussions of last year's severe difficulties at Huddersfield Polytechnic are now beginning to filter through to the academic staff, who are being asked to accept a 10 per cent reduction in salaries.

The polytechnic is committed to increasing its student staff ratio from the current level of about 8:1 to 10:1 by the end of 1981. There are 100 academic staff.

The committee was set up at the start of a financial crisis last autumn when the Council for National Academic Awards threatened to withdraw all student awards from the institution.

At the time, the polytechnic was in a state of financial crisis and the committee was set up to investigate the situation.

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and the prospect of increasing the size of its student intake, currently about 8,500 full and part time.

The polytechnic can expect up to about 30 academic staff to accept early retirement or leave through natural wastage. No timetable has been fixed for adjusting the SSR.

Meanwhile relations between the polytechnic and the local education authority, which have taken a turn for the worse, with an official statement pointing out the lack of confidence in Councillor John Mervin, who is chairman of both the education committee and the polytechnic governing body.

The governing body, which represents all the staff, is now in a state of financial crisis and the committee was set up to investigate the situation.

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## NEXT WEEK

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Profile of Malcolm Bradbury

John Wright on George Orwell

Philip Thody on postgraduate awards

Minority enrolment

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In the second of the THES's regular monthly arts pages the guest writer is Frank Sibley, who discusses a new course at Lancaster University. If you would like your arts activities listed on this page next month, send details or telephone 01-837 1234 (ext. 7751 or 7467).











## BOOKS

## Generation after generation

*Birth and Fortune: the impact of numbers on personal welfare*  
by Richard A. Easterlin  
Grant McIntyre, £9.95 and £4.95  
ISBN 0 86216 036 7 and 037 5

Professor Easterlin's central hypothesis is that the relative size of a generation (that is, of a group of people born in a given time period), is an important explanatory variable in social analysis. Both the well-being of the generation itself and of the rest of society will be influenced by relative size. Certain characteristics of the generation (what Easterlin calls "age specific effects") will be determined to a large extent by the number of people in it compared with its predecessors and successors. An example cited right at the beginning of the book is that of crime rates. He argues that these rise as the proportion of young adults in society rises not simply because these people have a higher crime rate than the rest of the population, but because their crime rate itself rises as a result of an increase in relative generation size. He makes similar comments about mental stress, suicide and social disorganization.

Professor Easterlin first proposed this hypothesis quite a long time ago, but this is the first time it has been set out fully in what might be called a popular form. It certainly seems to me that he has a good point: the chief trouble with it is that it tends to fog it to death. There must be something in the atmosphere of the US that causes economists to look far and concentrate on a single unifying causal principle.

An hypothesis of this kind obviously requires that the members of different generations should not be perfect substitutes for one another. A larger flow of young people, for example, lowers their relative economic status at the time they enter the labour market which cannot be offset by their under-earning established workers. Moreover, to the extent that they do not obtain skills as easily as their predecessors, their average lack of substitutability and inferior economic position becomes a permanent feature of their economic experience.

Easterlin suggests that this is, in fact, the case for men. For women he suggests that the reverse is

true: in competition for jobs the advantage lies with the younger age group. For his hypothesis to work he also needs to assume, however, that the scarcer older generation (the parents of the more numerous one) does not anticipate and prepare for the problems associated with a higher birthrate. Why, for example, is it that schools become more crowded, rather than that more of them are built? Why should parents having three children rather than two not maintain the average time devoted to each of them? More generally, why should the favoured generation of persons not use their better position to offset the relative decline in their offspring's prospects? This aspect of the problem is dealt with less satisfactorily, which is not to say that Easterlin is mistaken in his main thesis, but rather that so far it is incompletely worked out.

Consider, for example, his explanation of the behaviour of fertility (what he calls the total fertility rate). His emphasis here is on the role of economic factors, his essential proposition being that fertility rises as economic prospects rise relative to aspiration.

As the relative income of young adults rises, they will feel less economic pressure and hence fruer to marry and have children; they will feel increasing economic stress, and marriage and fertility will decline.

Now, the theory is not an impossible one. Indeed, Easterlin does all he can with the data to substantiate it, but does not remove all of the difficulties. One difficulty is to define what needs to be explained. Easterlin concentrates on the baby boom of the 1940s and 1950s followed by its reversal in the 1960s and 1970s. In a sense this is to explain one cycle, or maybe two additional cycles can be discerned, but these seem to be superimposed on a downward trend. In that case an explanation is also required of the trend itself, as well as whether the fluctuations are anything more than random.

Two other difficulties can be mentioned briefly. One is to reiterate the point that the economic explanation requires (more than most) an account of what the parents expect for their children.

The second is that core must be taken to allow for other, sometimes competing, explanatory variables. The ability to control the age at which a woman decides to become pregnant, her education, her relative labour market position, all are relative to the analysis of trend even if they say little about the cycle. More generally, here and elsewhere causes and effects are not easy to disentangle.

I hasten to add that Professor Easterlin is not unaware of all this; it is merely that he is a trifle over-enthusiastic in rejecting any hypotheses other than his own. This is especially the case in his dismissal of the influence of changing attitudes and the role of the women's movements. Thus, he rejects such explanations both because only a minority of women hold modern views, and because a majority retain traditional values. If anything, he considers that ideas and values are derived from economic forces rather than the other way round. This is typical of a kind of economic determinism which chooses to ignore the characteristic of American than British thinking.

It seems to be based on a confusion both of method and of interpretation. Of course, earning and spending must be dominant forces in our society so that someone who earned them would be seriously in error. But these economic forces themselves have an ideological basis and may be modified, therefore, by a change in ideology. Apart from that it should be borne in mind that seemingly large social changes may still involve only a small minority of people with an even smaller minority actually articulating them. Professor Easterlin makes abundantly clear, even within a baby boom most families behave exactly the same in broad terms as their predecessors did.

Altogether, Professor Easterlin has defined a significant problem area and made a valuable contribution to it. He has written a book which will interest the ideal reader. I think it is a good idea for students, both of economics and sociology, to read it, to furnish them, and provide a useful test of whether they actually understand their own subject.

Maurice Peston

Maurice Peston is professor of economics at Queen Mary College, London.

## Lessons from Japanese education

*Education and Equality in Japan*  
by William K. Cummings  
Princeton University Press, £11.00 and £5.35  
ISBN 0 691 09385 7 and 10084 8

As a book increasingly descends on the western horizons of the 1980s, the scene in Japan is significantly brighter. Not only is Japan's economic performance available, she is also endowed with one of the world's most egalitarian societies. As recent surveys have shown, in Japan 96 per cent of the people see themselves as middle class; and as Cummings indicates in this book, income differentials are among the narrowest in the world. The fact that one lives longer in Japan than anywhere else is, presumably, an important factor for measuring happiness.

Cummings' persuasive thesis is that this remarkable social transformation of the post-war era has been assured by the educational system and the values it has inculcated in the country's new youth. Although the book covers all levels of education, the emphasis is quite rightly placed on the primary sector, which the author regards as the most important factor for ensuring happiness.

Throughout recent decades there have been reports of a government and its people who are

(Nikkoso). While pay has occasionally featured in this conflict, it has always assumed a very subsidiary role. The major issue has been the nature and direction of educational policy, the government pulling in an ideological direction, the unions resisting and emphasizing the ideal of egalitarianism. With the media devoting considerable attention to the debate—generally on the side of the union—education is a force of nationwide interest.

The union's social idealism has resulted in teachers standing for "education" as opposed to "vocational education" or "purely cognitive education". The pedagogical approach, therefore, is clearly biased in favour of the humanities and the inculcation of a sense of mutual respect. There is no streamlining in the Japanese primary school; on the contrary, the stream are encouraged to help the weak.

The primary school classroom is that this remarkable social transformation of the post-war era has been assured by the educational system and the values it has inculcated in the country's new youth. Although the book covers all levels of education, the emphasis is quite rightly placed on the primary sector, which the author regards as the most important factor for ensuring happiness.

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shows that these qualities endure in adult life.

by do not regard it as a very serious matter. The Japanese have attained a remarkable degree of literacy and numeracy. The university entrance examination system selects the crème de la crème, but it is a very rich milk-jar, and it is a very rich milk-jar, and it is a very rich milk-jar.

One of the results of this book's publication has been the emergence of what may be termed "creeping vogelism", namely, a creeping, unobtrusive, and dangerous, but unmistakable, attitude towards the Japanese educational system. There is a tendency to regard the Japanese educational system as a model to be emulated. This is a dangerous attitude, for the Japanese educational system is a complex, multi-faceted, and highly context-specific system. It is not a simple matter of copying and pasting. The Japanese educational system is a product of its own unique history, culture, and social structure. It is not a universal model to be emulated.

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A seated, cross-legged god from the front of a Zapotec funerary mask, reproduced from *Of Gods and Men* by Anna Benson Giles and Chloé Sayer (BBC Publishing, £11.00).

## The people's success

*Human Resources in Japanese Industrial Development*  
by Solomon B. Levine and Hisashi Kawada  
Princeton University Press, £11.00  
ISBN 0 691 03952 6

In 1881 a foreign observer of Japan remarked on the Japanese people's "love of indolence and pleasure" and "using content with little, he is not likely to achieve much". Many historians and social scientists since then have tried to discover why this judgment has proved to be so mistaken. The authors of this book look at how Japan's unique success as a modern industrial society in the last hundred years can be explained by the development of her human resources, by the educating and training of her population for work in mechanized, technologically sophisticated factories rather than in the traditional, manually-based occupations of agriculture and artisan production.

Levine and Kawada argue that the vital initiative for creating a suitable workforce for Japan's growing industries has come from business institutions rather than from the government. While the government has been a priority of the first leaders of modern Japan, secondary and tertiary education was not organized efficiently to provide industrial training until the 1920s. The government's role was to provide a framework for the development of the industrial workforce, but it was the business community that provided the training and education for the workforce.

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*Learning through Computers: an introduction to computer-assisted learning in engineering, mathematics and the sciences at tertiary level*  
edited by David A. Tawney  
Macmillan, £11.00  
ISBN 0 333 23585 1

Academics in higher education regard educationists with suspicion and distrust so that those who wish to change teaching have to learn two simple rules. The first is to remain identified with any subject or discipline other than education. The second is to practise the soft sell. Attempts to establish an innovation by claims based on a deep theory, boldly pointing to a promised land by way of imaginative insights, may be respectable for research, but for teaching they do not work. Two reasons explain their failure. The first is that they must be misinterpreted because there is no theory of learning adequate to guide a grand design. The second is that they are tactically unsound because the customer is, in these matters, suspicious and pragmatic. So the innovator must learn to do the shabby reincoat and the fluff cup.

This book adopts a modest pragmatic approach. The editor has put together contributions by 18 different authors, all of whom were actively engaged in higher education projects supported by the National Development Programme in Computer Assisted Learning (CAL). The book thus serves as a report on this work, and thereby becomes a survey of CAL in higher education in this country.

Five chapters separately describe uses of CAL developed in biology, chemistry, engineering, mathematics and physics. The appendices, which occupy a fifth of the book, give brief descriptions of the projects involved with information about the nature of the work, the value of the work, and the value of the work. The book is therefore a very valuable source for anyone wishing to appraise existing resources and to make contact with those who have experience of their use.

These five chapters come first, but they are set in context by six further chapters which attempt to generalize and reflect. Two of these, on the hardware, design and management aspects and on the costs of CAL, provide straightforward guides for users, outlining both the relevant terminology and the questions to be asked about any computer system. Chapters on the "Contexts of CAL", on "CAL and Learning", and on "Package

Design" have a more difficult task of generalization, but the reader can compare these chapters with their sources, in the accounts of the programmes and their use, which form the first part of the book.

The final chapter, on the "Evaluation of CAL", introduces new information. This is the least satisfactory chapter. The text drops dark hints of dissonance and for the first time the book gives accounts of how the programme went about its work, at the expense of the space available for the account of what was achieved. There are good reasons for uncertainties in this area—evaluators have to explain that even the authors of a "Which?" report often cannot give a best buy, but should rather describe what you get for your money and leave you to choose. But the descriptions here are unimpressive and brief and tentative. It is at this point more than any other that the modest tone is taken too far.

What emerges is a range of possibilities for a new component in the learning of science and engineering. The accounts show that CAL does not replace existing teaching—it is a new resource with its own peculiar strengths and weaknesses. It is clear also that the innovations described could only claim to save money if some form of market cost accounting were used to hide broader perspectives of institutional and national costs. The evaluation makes clear that it is in principle almost impossible to show that CAL methods achieved old time better than other methods, and that the task of describing the learning that it does provoke and promote, let alone any appraisal of the depth and breadth of such achievement, has only just begun.

In spite of all these reservations, there are strong positive attractions, and it is a virtue of the book that these emerge in many forms and at many levels. For example, where a computer programme is designed to engage in a tutorial dialogue, the demand that students must work with a programme without a tutor leads to a need for small steps, and the chapters which attempt to generalize and reflect. Two of these, on the hardware, design and management aspects and on the costs of CAL, provide straightforward guides for users, outlining both the relevant terminology and the questions to be asked about any computer system. Chapters on the "Contexts of CAL", on "CAL and Learning", and on "Package

## Biological insight as a basis for understanding human behaviour

*The Evolution of Culture in Animals*  
by J. B. Bonner  
Princeton University Press, £8.10  
ISBN 0 691 08250 2  
Sociobiology: the whisperings within  
by D. P. Barash  
Sovener Press, £6.50  
ISBN 0 285 62434 2

What does the study of animal behaviour tell us about human behaviour? Two differences between animals and humans cloud the issue. First, human behaviour, culture and customs are astonishingly variable. Secondly, very little of that variation is under direct genetic control. If we are to use biological insight as a basis for understanding human behaviour, we must investigate the evolution of culture across the animal kingdom. And that is John Tyler Bonner's aim in a beautifully conceived 200 or so pages. There is little new in the book, as Bonner is the first to point out, but it is a very good book, and it is a very good book, and it is a very good book.

Professor Bonner teaches at Princeton University. His efforts to make his work accessible to a wide audience have attracted a wide audience. This one should do the same, for it offers a clear perspective and is accessible to laymen and academic alike.

*Soils: their formation, classification and distribution*  
by E. A. FitzPatrick  
Longman, £25.00  
ISBN 0 582 44188 9

A rewritten and enlarged edition of the author's *Pedology: a systematic approach to soil science*, this remains a highly individualistic text—just as well perhaps, as there are now so many books on soils. Its major contributions lie in its meticulous treatment of soil properties and horizon characteristics and in its treatment of soil mineralogy; and there is no other general text which gives such attention to soil structural characteristics and micro-morphology.

The book's main achievement, however, is in the organization of the material in the chapter on soil classification, which is a masterpiece of clarity and logic. It has been done in the teaching of fluid mechanics, and the example shows not only that the new technique can lead to radical change, but also that this change affects the design, dimension and teaching of a course. So institutions have to adapt; where they cannot, new grafts may be required.

This should make clear that those interested in educational innovation would do well to study this book—it says more than many a more pretentious work. Nevertheless, the declared intention, to be introductory and not authoritative, has led to too low a profile. The absence of any serious review, however brief, of work in other countries, particularly the United States, is an almost disarming weakness even for an introductory work.

Any change which transforms learning patterns, in however limited an area, can be a powerful occasion for re-examining the little we understand about how students learn. In this respect the book leaves the feeling that there is far more yet to be gained from the development of CAL, and that its authors had been more ambitious: they could have taken us all further along this road.

P. J. Black

P. J. Black is Director of the Centre for Science and Mathematics Education at Chelsea College, London.

A fourth edition of D. W. G. Ballentine and D. R. Lovett's *Dictionary of Named Effects and Laws in Chemistry, Physics and Mathematics* has been published by Chapman & Hall at £7.95. The same publisher has also released a fourth edition of H. G. Jerrard and D. B. McNeill's *Dictionary of Scientific Units* at £5.95.

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Paul Harvey

Paul Harvey is lecturer in biology at the University of Sussex.







100-443887-100

1. The first step is to identify the problem. This involves understanding the nature of the issue and the scope of the problem. It is important to gather all relevant information and to consult with stakeholders to ensure a comprehensive understanding of the situation.

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away the best opportunity for colourful writing, as many published letters confirm, and it has certainly been for me as good an opportunity as any for my membership of the Writers' Union. I remember signing the first letter on an aeroplane in 1941, while waiting to fly to the Far East, and describing a frighteningly formidable woman sitting on the opposite seat in grey slacks. I convinced myself as I went on writing, a top member of SMERSH or SPECTRE, and when we were suddenly all hurried out of the plane, I was in the (better plane, said the stewardess, it works better than this one) she had disappeared (perhaps my writing had been watched on a monitor and she had been taken away and despatched). If my writing was as effective as that, I thought, I would watch everyone like a hawk and keep on writing as I had always done on my own.

I wrote regularly to a girl



Among the pleasures of the Christmas vacation, especially if like this year's it has been too long delayed, is the opportunity, since it is ill-possible to be too cold to sit outside, too wet to go walking and too windy to stand around sketching, to do nothing but read. Like most academics with a lot of management awaiting and too much bumph to subject to the skills of fast reading, I have a list in my mind of several hundred books which I am going to read sometime. It is even more of a pleasure not to read any of them but instead to settle down with a book or two which have just come into one's hands and demand nothing more than simple enjoyment.

Simple enjoyment would, on the other hand, be a slipshod description of any serious reaction to Evelyn Waugh's letters. I have just finished reading with intermittent laughter and repulsion at the funny, caustic and sometimes hilariously inaccurate comments of this gruesome man. It was faintly satisfying to find that he had many admirable footnotes references to me, though not by name, and he had had some connexion with the theatre in Dublin. He kept a lot of letters. What he did not want in the way of letters or books or newspapers was a letter box or a newspaper to be thrown on the floor and once a week he opened the front door and swept the lot into the front garden which as a result was a disgusting and romantic work of expenditure.

He either showed us or quoted a letter from Sean O'Casey to the managers of the Gate Theatre in Dublin which started with the memorable phrase, "My dear Sirs," and ended with "Yours faithfully, Sean O'Casey." Here it seemed was a promising formula for literary distinction and creative management. Think of the electric effect such a letter would have on all sorts of respectable officials and leaders of society. For months afterwards I started writing letters with that underlining of address—to a bishop and his diocese, a vice-chancellor and his university, a college principal, a cathedral dean and so on. At the end I always thought better of it; on the tour, however, all such inhibitions were removed. Having no reason to write to anyone, well known (I didn't know any well to begin with), I just wrote to a girl friend in that friendly way.

which connects with a story about Waugh and the Edinburgh rectorial election which I used in an earlier article. In the *Edinburgh Evening News* of Waugh is quoted as writing that the affair "was... interestingly uneven and suddenly violent." He goes on to say that "the only man beaten unconscious by a rival firm with hockey sticks". Well, that was me and I suppose the words "suddenly" and "being recorded, even anonymously."

I would surely write those letters for ultimate publication. Perhaps there is something about that prospect which lends a few extra minutes of thought and callousness that might disfigure a truly private communication. The editor remarks that his lawyer had pointed out over 250 potentially libellous

At my rate the letters are much more entertaining than the previously published diaries. The difference, someone remarked, was caused by the fact that he wrote his letters in the morning when he was sober and in the afternoon when he was drunk. You might have thought that would make the diaries funnier than the letters but in practice the opposite is usually the case. As a famous Scottish judge remarked in the eloquent defence of a violent prisoner whose defence was that he had been drunk at the time, "If a man will do such a thing when he is drunk, what will he not do when he is sober?"

Drunk or sober, by night or morning, I have been thinking it is time I started writing letters again; as that someone may one day feel like publishing them and I shall thus be able to score off people I shall know the grave. Trying to quit I have produced me to a number of grotesque and asinine people who need to be insulted in some immortal way and reduced to lasting ridicule. The only thing I have failed to write those letters and perhaps there is a reason.

My writing was not nearly so steady when I was a slight and shy young man. I was continually when travelling I suppose in far and

was even better) or the manure of Kilgillfin I have never quite decided.

What was just as important was the recognition that writing letters changes people, as presumably writing novels does. Something gets into the system and demands to be released. There are academics who should not feel their own selves called upon to write letters because, however mild and charitable they are in conversation, as soon as they get behind a typewriter they pour out excoriating pages and abuse with invective and sarcasm and wit. I suppose the distance and safety of letter-écriture sets them free. Me too.

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Sir,—The National Union of Students welcomes articles which demonstrate in the words of *THE THES* itself, "just how regressive our system of student awards has become". NUS has repeatedly pointed out the inequity of the current grants system and how it contributes to the maintenance of an elitist and socially top-heavy education system. However, both your leader (*THES*, December 19) and Professor Mark Blaug will really have to try harder to understand some of the real problems of the awards system, and come up with genuine attempts to reform its "hamperedness".

his "damnedness".

It is necessary to comment on Professor Blaug's particular proposal to tax grants as part of family income. Professor Blaug claims that "if grants were not means-tested but instead treated as additional family income taxable at the going rate, they would probably be worth to the high income parents and more to low income parents. Frankly, even in its own terms it is difficult to see how this system would benefit poor families, since it would actually mean that those now in possession of a full grant would be put, first of all, because they would be put, in fact, as part of family income. It would actually make poorer families worse off than they currently are.

Professor Blaug moreover overstates his case. The possession of a

if, the NUS would like to know where Professor Blaug has been for the past five years if he has only just woken up to that fact. This long bout of intellectual torpor is compounded by a failure to present his statistics in a critical fashion. Precisely because the DES has been aware of the biases in the system, and more precisely because of the pressure applied by NUS over the years, the system has been ameliorated since 1971 in ways which have not been indicated by Professor Blaug's Lorenz curves.

The NUS would like this to go much further, and if Professor Blaug would care to look behind the headlines of student grant claims he would find that we have argued for the very reforms in the means test, with

## Theology and the history pro

This is not good enough, and it is not surprising that Professor Kenyon failed as a reviewer and blundered in his own field—a field that must cause historians (as opposed to rumormongers among cultural debris) to blush. What is surprising is that a historian should display such awareness that Christian history has a history reaching back beyond 1662. The surprising is that he should appear to assume that liturgy should remain by and large as it found form in 1662. Are there professors of history who are unaware of the discoveries afforded by the study of human (particularly religious) traditions—discoveries, namely, of man's and of society's essential historicity, and of

rise in his review and this is what renders it a disaster. He forfeits the opportunity to advance the science with which he is meddling because above all levels of carping or scoring points with childish errors in doing so he has fallen into errors on matters of fact and betrayed a lack of that perception for common porosity affairs which one misses deeply when one misses it in a historian.

Out of respect for the value of your space, here is but one example of this. There is another way of viewing "Kenyon and we praise you," Kenyon criticizes the "honouring God." Is he going to accuse Cranmer or the original for "Thou art the King of Glory: O Christ?"

### Sail Sandwiches:

Sir.—Sue Emmett's brief reference to the North East London Polytechnic in the "place, pic, andwich" abstract, *TRUTH*, December 12 may have misled readers, as I am a sandwich and student at NELE taking a sandwich laboratory work, and those elements in hospital labors, or having the medium element in them, are not part, these students do receive financial support from authorities.

Yours sincerely,  
MARTIN WALDE,  
North East London Polytechnic.

### Centrifugal force

Sir.—While teaching elementary theoretical mechanics at a further education college, I have noticed many students have to learn the concept of centrifugal force. It is very well to say that all, they have to learn properly, learn Newton's Laws. The concept is simple. Newton's Laws make sense only in an inertial (non-accelerating) frame of reference. However, the only way to properly define the concept of class of inertial frames is to say that it is the class of frames in which New-

**J. L. Beales**  
Mr. Beales drew the attention of his readers to a disturbing error in the 1966 edition of *General Education*. He refers to the fact that Beales pointed out the latter, in a letter, with an "outstanding" error.

**W. ARMSTRONG**  
Vice President,  
University of London  
Institute of Educational Studies

its being phased out as quickly as possible. For instance, last year a major part of the opposition to the Government was concerned with the introduction of a housing allowance (instead of the mortgage interest allowance) which would have raised the housing costs of parents and reduced the tax relief given some relief. This would obviously have benefited those not paying mortgage interest but incurring other costs such as rent.

surely, the Government felt itself unable to finance such a scheme, but if Professor Blaug is to devote some time to research which would genuinely ameliorate the means test, then we would be happy to consult with him on this subject. We are also interested to find that the Department had there was discussion on the child tax allowance) that the full yield from the child tax allowance to the parents of students should have been used to make up the scale more equitable between high and low income earners and substantially ease the conditions for independent status. We have also argued consistently that the co-venturing system which favours high income parents should be withdrawn and the aid used for the same purpose. These proposals, even your leader-writer and Professor Blaug must be forced to concede do not represent "a conservative defence of the status quo". Nor are they as insignificant as Professor Blaug makes out. They are, rather, milestones on the road to a new system of higher education is one that has been defended against the machinations of politicians and the pinching economy of Government (as well as the exorbitant salaries of senior academics and the pensions of leader writers).

NUS is currently embroiled in discussions with the DfES over the years' grant review. We are in the light of these and other helpful comments in which we can depend on the support of a whole-hearted support of our attempts to make the means test fairer and more relevant to 19 education against the discretionary awards, income grants regulations is a greater access (including additional entrants) and a more attractive, more mature and financially attractive environment to one or two of them who finished their education.

Yours faithfully,  
ALEXANDER ANDREWS  
Vice-President,  
National Union of

Sir,—I wish to register a criticism of your journal's reviewer selection policy in connexion with the Alternative Service Book 1980. Your issue (December 12) reviewed works on literature, race, the third world, agriculture, mathematics and animal reproduction. Each was dealt with by a professional in the appropriate field. Why, then, was the review of the ASB handed to a historian? The first reason appears obvious. Like all the main strands of our cultural, intellectual and social history has a history. So an historian might have been the right person. Unfortunately, however, the historian selected was the professor of history in the college who elected to review in the role of a critic of literature. So, an essentially theoretical product being reviewed by a professor of history as if he (more accurately, she) of the theological community was especially competent to comment as guardian of the language of the church's liturgy.

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Institute of Educational Studies

In previous ages there was every reason for saying the latter, today there is every reason for saying the former as well. In former ages there were those who did not recognize Christ as the King of Glory. Today, in spite of the cadences of the BCP, there are even more who do not even recognize God as God. Neither phrase, however, is notifiable. Anyone with the slightest knowledge of contemporary philosophy of language (Professor Kennedy really should stick to history) will recognize that the performative function of such utterances is that of confessing. This is the church is about. Whether the ASB will help it to do that as well as it can be done today is something we shall not know immediately.

professional etiquette, apart from the important factors, makes it inappropriate for me to make a personal comment on the way the professor of history misused my task, and wasted my space, in another respect by turning to attack the clergy of England. It will, however, not have gone unnoticed by the readers who read your reviews, in this respect, and so I say other than that for which it was intended, which is that the tone and the management of this review hardly inspire confidence in the power of what it so uncompromisingly recommends, whether to produce Christian virtues or to suppress the spiritual impoverishment which the reviewer finds in so many of us.

Finally, Sir, may I request that in

ture you go about the business of finding the right man for the right job in a more businesslike manner. Yours sincerely,  
**NICKEL J. A. KINSELLA**  
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express the unphysical nature of a force which is not gravitational, electromagnetic, or strong interaction, and to ultimately agree with their sense of elegance and simplicity.

Your correspondent J. W. Warren (December 26) complains that many textbooks do not understand Newtonian dynamics in a particularly surprising, Newtonian dynamics is such a deep theory that its roots lie from the proper perspective lead to the solution of this problem in transformation of the problem to the solution of a problem in mechanics, the solution of which is the

**AUT Merrymakers**  
The Birmingham regional class association has been planning to stage a series of parties of introducing new members to the AUT Council to their manufacturing and engineering friends.  
The first party was held at the Grosvenor Hotel, London, on 11th November, and was a success.

The Government's attitude towards student grants is the first thing that catches one's attention. It is determined to undertake a substantial reform of the present system of student support. The second is that this reform should take the form of a partial or complete abolition of grants.

No doubt Dr Rhodri Iwan Jones concluded after 18 months of tapping the pool and "brooding" that it is in his own political interest to concentrate his efforts on the more important and manageable issue rather than his colleague, Mr Macfarlane, has called his colours to the tertiary sector.

However, two other things catch one's entire attention. The first concerns the motive for this reform. Is it purely a financial measure to reduce public expenditure by involving private money in student education?

Sadly, happily, the present Government, although it has prejudices about the future shape of higher education, appears to have no settled policy. So it is a safe assumption that its policy on student grants will be exclusively financial.

The second thing that is unclear is the detailed mechanism that the Government might propose to produce the mixed economy of grants and loans envisaged.

The simplest and most straightforward is to make a fixed proportion of a student's grants into a repayable loan, rather like a mortgage, which must be repaid by the disadvantaged groups, "negative dowries", and so on. The problem is that this depends on the active and substantial participation of the private financial sector, and if this does not occur, public expenditure will be frustrated.

It is probably fair to say that the Government may already present impractical and definitional problems. Inland Revenue is unlikely to welcome the move from the DfE's additional tax system to regressive tax cuts as a much larger non sensible Government

to start answering questions on new premises, we shall add new ones.

A third option would be that the first ways to make sure students' future. For example, if they are not graduates, they can get grants. Of course, it would be easy. It would be able to Dr Roydon who require them to loans at a rate of their parents pay

support on financial grounds. Or is this proposed reform to be an instrument of wider policy, to be used to steer students to courses that are most relevant to our national needs? It is perfectly possible to manipulate the student support system to favour engineering students at the expense of sociology students, or students in non-advanced further education at the expense of those in traditional higher education. After all, the present system deliberately does not discriminate between students in different disciplines (with very minor exceptions), and it does favour students on a high-level, full-time, post-16 course at the expense of the rest. So if the Government has any plans to steer the higher education system towards a particular type of work, it would be foolish to pursue a system of student support that might

There are two subsidiary problems. First, to make such a regime both attractive to the lender and bearable to the borrower in a time of inflation is no easy task. At present, the Government might be expected to provide a subsidy to bridge the gap. Second, if in addition the interest paid by the borrower was made tax-deductible, saving in public expenditure might be rather modest—perhaps too modest to be worth the inevitable aggravation of a second option is to introduce a graduate tax (although despite the emphasis in a speculative story in *The Guardian* last week this is much less likely). The problem here is that the British tax system is already so complex and illogical that it is in no condition to direct a new force like a graduate

might appear to be a misunderstanding as adults doubt run into a time when the graduate tax will be without precedent allowance for child care costs, and the government will have to pay to the wife. The different from the grants paid to the young income grants paid to the young grants to all students. As an ideological panacea, intellectual inertia, but it means the openness of the grants with social prudence.

the lukewarm support for tertiary colleges about to emerge from the Macfarlane Committee. The final, short rewritten version of the report, however, is a growing lobby of the 16-19 age group is unlikely to satisfy the growing lobby for traditional sixth form work to take place alongside vocational courses in the place of environment said to be preferred to secondary education.

To their supporters, tertiary colleges are the 'obvious' and 'most desirable' answer to the vicious circle of falling rolls and declining opportunities in sixth forms. It is the only way to ensure the growth

But those in higher education should beware of jumping on the bandwagon too soon. There is considerable evidence that a further artificial break at the age of 16 which might as easily result in more school-leavers deciding to abandon education rather than make another break, would in the present economic climate the attractions of an income, if only from supplementary benefit, should not be underestimated.

In terms of standards, too, the benefits are questionable. Good teachers will be lured away from

the near future is likely to be one of both staff and students.

However, the estimate is right in dimension, even appearing to be too small. The application of decreasingly stored and defunct system.

What suits a school with a broad sixth form may not suit a large, sparsely

more 16-year-olds to continue their education and would have the desirable side-effect of protecting future potential recruits from the demographic problems currently besetting the schools.

The colleges would continue the comprehensive idea of a single institution at the same time saving local authorities money by allowing higher pupil/teacher ratios and providing more choice with regard to the sixth form. They would never catch

schools if the caveat of more advanced work is no longer availed, perhaps leading to a further potential recruits to higher education at a crucial stage. The schools themselves will also lose the steady stream of pupils of their more mature colleagues.

It may well be that circumstances will arise where the Government's main authorities towards tertiary colleges regardless of any Govern-

ment policy. It is not at all clear that the Government's policy is to encourage the growth of the tertiary colleges over the secondary schools. The Government's policy is to encourage the growth of the tertiary colleges over the secondary schools. The Government's policy is to encourage the growth of the tertiary colleges over the secondary schools.

The state of vandalism directed at eminent scientists using animals in legitimate research is an unfortunate reminder of the widening gulf between public opinion and the inadequate legislative response of successive governments to deal with potentially cruel experiments.

The guarantee of compromise lies somewhere in the continuum of, a) use of animals; the use of animal experimentation; and b) the use of animals on unecessarily justifying financial gain by the issue of science enabling certain scientists to use certain animals in ways to advance their careers and the public interest in the use of some part of the animal kingdom by some

researchers who would claim it is Halsbury as a replacement for the search to put

her education colleges from the demographic problems; currently selecting the schools.

The colleges would continue the programme to a state further to the same time saving, local authorities' money, by allowing higher pupil/teacher ratios and providing more teachers to the 15th year, which would never match the potential recruits to higher education at a crucial stage.

Education will continue to have a steady influence on younger pupils of their more mature colleagues.

It may well be the circumstances of the 1970s that will force many authorities towards tertiary colleges regardless of any Government policy.

# Research and animal cruelty

between public opinion and the inadequate legislation proposed by successive governments to deal with the increasingly cruel experiments. The Committee of Compassion lies somewhere in the continuum of a moral ban on the use of animals in experimental research, through a ban on unnecessarily inflicting physical pain by the issue of licenses enabling certain scientists to use certain animals in ways deemed necessary by the government, to a total ban on inflicting harm by some claim on our sensibilities.

The fallacy inherent in a blanket approach to the use of animal experiments is that the legitimate and well intentioned medical and agricultural research which has led to cultural research which has led to rapid improvements in the state of health of both individuals and animals would be in danger of suffocation under the restrictions of legislation demanded by emotive reasoning.

The new Laboratory Animals Protection Bill presented by Lord Dawson of Westminster is a government legislation backed by a cross-party Anti-Vivisectionist and a cross-party Animal Experimentationist. The social and political position is not likely to be as cruel, and as small extremes as high time the need used the need private and

researchers who would claim it is Halsbury as a replacement for the search to put